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In re Application of:
OLIVIER HERICOURT

Serial No.: 09/6⁶5,019

Filed: 09/19/2000

For: **SYSTEM AND METHOD FOR
ACCESSING A SOCKS SERVER FROM
AN END USER WORKSTATION AND AN
IP NETWORK**

Examiner: **ADNAN M. MIRZA**

Art Unit: **2141**

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APPEAL BRIEF UNDER 37 C.F.R. 1.192

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Sir:

This Appeal Brief is submitted in triplicate in support of an Appeal of the Examiner's final rejection of claims 1-3 and 31-45 in the above-identified application. A Notice of Appeal was filed in this case on June 16, 2004 and received in the patent office on June 21, 2004. Please charge the fee of \$320.00 due under 37 C.F.R. § 1.17(c) for filing the brief, as well as any additional required fees, to IBM Deposit Account No. 09-0457.

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10 AUGUST 2004

Date

Pia K. Lorenzana
Pia K. Lorenzana

REAL PARTY IN INTEREST

The real party in interest in the present Appeal is International Business Machines Corporation, the Assignee of the present application as evidenced by the Assignment recorded at reel 011152 and frame 0512 et. seq. of the USPTO assignment records.

RELATED APPEALS AND INTERFERENCES

No appeals or interferences are known to Appellants, the Appellants' legal representative, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the present appeal.

STATUS OF CLAIMS

Claims 1-30 were originally presented. Claims 1-3 were amended, claims 4-30 were cancelled, and claims were 31-45 added as reflected in the Amendment filed January 12, 2004. Claims 1-3 and 31-45 stand finally rejected by the Examiner as noted in the Final Office Action dated April 2, 2004. The rejection of each pending claim is appealed.

STATUS OF AMENDMENTS

No amendment to the claims was proposed or entered subsequent to the Final Rejection dated April 2, 2004.

SUMMARY OF THE INVENTION

The present invention is directed to a method, system, and computer program product for improving dispatching of Socks network traffic. As explained on page 8 et seq., Socks connectivity provides secure encapsulation of network traffic having an underlying Application Level protocol (i.e., protocol such as HTTP, FTP, Telnet, etc.) that determines the subsequent flow of information exchange after a Socks connection is established. A Socks server is a proxy server that accepts requests from clients in a protected intranet and forwards these across the Internet. As depicted in Figure 4 and explained on page 9 et seq., prior art Socks transport often employs a dispatcher function to balance the load across multiple Socks servers. The present invention recognizes that such load balancing which does not account for the underlying Application Level protocol results in a significant penalty in terms of interfering with the intended transport characteristics of the connection as per its Application Level protocol.

Figure 6 depicts a dispatcher system 615 that selectively dispatches IP datagrams to multiple Socks servers 603 in accordance with Application Level protocol related Type of

Service (TOS) values encoded into the datagrams in accordance with the invention. The system is adapted to implement the method depicted in Figure 9, which at step 905 depicts determining whether or not a given IP datagram is a Socks connect message, and if so, determining the Application Level protocol from transport data in the IP datagram (step 907). The Socks connect determination is therefore used to decide whether or not a new connection table record for a new connection is required, and if so, to set the TOS value of the datagram in accordance with the underlying Application Level protocol.

ISSUE

The rejection of claims 1-3 and 31-45 under 35 U.S.C. § 103(a) as unpatentable over U.S. Pat. No. 6,477,577 issued to Asano (hereinafter *Asano*) in view of U.S. Pat. No. 5,892,903 issued to Klaus (hereinafter *Klaus*).

GROUPING OF THE CLAIMS

For purposes of this Appeal, all of the pending claims stand or fall together as a single group.

ARGUMENT

The present appeal is filed in response to the Final Office Action dated April 2, 2004, in which claims 1-3 and 31-45 of Appellants' application stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Asano* in view of *Klaus*. That rejection is not well founded and should be reversed because the combination of *Asano* and *Klaus* does not teach or suggest each feature recited in the present claims as required for a rejection under 35 U.S.C. § 103(a).

Independent claims 1, 34, and 40 include fundamental limitations that are neither disclosed nor suggested by *Asano* and *Klaus* individually or in combination. Namely, each of the independent claims 1, 34, and 40 (represented in the following discussion by claim 1) includes a first element of determining whether or not a given IP datagram is a socks connect message followed by steps performed responsive to determining that the datagram is a socks connect message. Exemplary of the independent claims, claim 1 recites a method for setting a value in a type of service (TOS) field in an Internet Protocol (IP) datagram comprising in part:

“determining whether or not said IP datagram is a socks connect message;”

“in response to a determination that said IP datagram is a socks connect message,

determining from said IP datagram an Application Level protocol (ALP)

transported by a socks connection;

locating from a type of service (TOS) definition table a record corresponding to said ALP of said IP datagram; and
determining from said located record a TOS value; and
subsequently writing said determined TOS value into said TOS field of said IP datagram, wherein said TOS value is based on said ALP transported by said socks connection.”

As contended in the Response under 35 CFR 1.116 filed on April 15, 2004 in response to the Final Office Action, *Asano* does not disclose or suggest any step or element for determining whether or not a given IP datagram is a socks connect message. In the Final Office Action on page 2, item 2, the Examiner asserts that such a determination is disclosed at col. 6, lines 58-67. In fact, no such determination of the character of a particular IP datagram as being a socks connect message is disclosed in this passage or anywhere in the *Asano* reference. Instead the passage at col. 6, lines 58-67 describes use of a socks server record to contain connection substitute server information when the connection substitute server is a socks server.

While processing for determining (recognizing) a socks connect message is known in the art, the absence of any discussion in *Asano* of any such determination is logically indicative of the consequent absence of any disclosure by *Asano* of any steps whatsoever performed in response to such a determination. On page 2, item 2, of the Final Office Action, the Examiner asserts that at col. 9, lines 32-44, *Asano* further discloses such responsive steps including, “determining from said located record a TOS value; and subsequently writing said determined TOS value into said TOS field of said IP datagram, wherein said TOS value is based on said ALP transported by said socks connection.” The disclosure at col. 9, lines 32-44 clearly relates to host-specific IP addressing and not to the Application Level protocol TOS categorization (e.g. HTTP versus FTP categorization) and therefore does not disclose or suggest the foregoing steps. Furthermore, none of the actions described at col. 9, lines 32-44 or anywhere else in *Asano* are precipitated by a determination of whether or not a particular IP datagram is a socks connect message.

CONCLUSION

Because the combination of *Asano* and *Klaus* does not disclose or suggest a method or system for setting a TOS value in an IP datagram in which the underlying ALP is identified and utilized to set a TOS value for the datagram as recited by the foregoing techniques, the rejections of exemplary claim 1, and analogous system and computer program product claims 34 and 40, and their respective dependent claims under 35 U.S.C. § 103(a) should be reversed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'M. Baca', is written over a horizontal line.

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APPENDIX

1. A method for setting a value within a type of service (TOS) field in an Internet Protocol (IP) datagram, wherein said IP datagram being sent from a source application that resides within a source device to a destination application that resides within a destination device, said method comprising:

- determining whether or not said IP datagram is a socks connect message;
- in response to a determination that said IP datagram is a socks connect message,
 - determining from said IP datagram an Application Level protocol (ALP) transported by a socks connection;
 - locating from a type of service (TOS) definition table a record corresponding to said ALP of said IP datagram; and
 - determining from said located record a TOS value; and
- subsequently writing said determined TOS value into said TOS field of said IP datagram, wherein said TOS value is based on said ALP transported by said socks connection.

2. The method of Claim 1, wherein said IP datagram includes an IP header having a source IP address field and a destination IP address field, wherein said IP datagram further includes a source port field and a destination port field, wherein said method further includes:

- reading a source device address of said source device from said source IP address field;
- reading a destination device address of said destination device address from said destination IP address field;
- reading a source application address of said source device from said source port field;
- reading a destination application address of said destination device from said destination port field.

3. The method of Claim 1 wherein said IP datagram includes a header checksum field, wherein said writing said determined TOS value further includes:

- computing a header checksum value for said IP datagram according to said TOS value;
- and
- writing said computed header checksum value into said header checksum field.

Claims 4-30 is canceled.

31. The method of Claim 1, wherein said method further includes storing in a socks connection table a new entry containing said TOS value.

32. The method of Claim 1, wherein said determining whether or not said IP datagram is a socks connect message is performed by a socks traffic analyser component within associated with said source device.

33. The method of Claim 1, wherein said writing said determined TOS value is performed by a socks TOS finder component within associated with said source device.

34. A system for setting a value within a type of service (TOS) field in an Internet Protocol (IP) datagram, wherein said IP datagram being sent from a source application that resides within a source device to a destination application that resides within a destination device, said system comprising:

- means for determining whether or not said IP datagram is a socks connect message, in response to a determination that said IP datagram is a socks connect message,
- means for determining from said IP datagram an Application Level protocol (ALP) transported by a socks connection;
- means for locating from a type of service (TOS) definition table a record corresponding to said ALP of said IP datagram; and
- determining from said located record a TOS value; and
- means for subsequently writing said determined TOS value into said TOS field of said IP datagram, wherein said TOS value is based on said ALP transported by said socks connection.

35. The system of Claim 34, wherein said IP datagram includes an IP header having a source IP address field and a destination IP address field, wherein said IP datagram further includes a source port field and a destination port field, wherein said system further includes:

- means for reading a source device address of said source device from said source IP address field;
- means for reading a destination device address of said destination device address from said destination IP address field;
- means for reading a source application address of said source device from said source port field;
- means for reading a destination application address of said destination device from said destination port field.

36. The system of Claim 34, wherein said IP datagram includes a header checksum field, wherein said writing said determined TOS value further includes:

means for computing a header checksum value for said IP datagram according to said TOS value; and

means for writing said computer header checksum value into said header checksum field.

37. The system of Claim 34, wherein said system further includes means for storing in a socks connection table a new entry containing said TOS value.

38. The system of Claim 34, wherein said means for determining whether or not said IP datagram is a socks connect message is a socks traffic analyser component within associated with said source device.

39. The system of Claim 34, wherein said means for writing said determined TOS value is a socks TOS finder component within associated with said source device.

40. A computer program product for setting a value within a type of service (TOS) field in an Internet Protocol (IP) datagram, wherein said IP datagram being sent from a source application that resides within a source device to a destination application that resides within a destination device, said computer program product comprising:

program code means for determining whether or not said IP datagram is a socks connect message;

in response to a determination that said IP datagram is a socks connect message,

program code means for determining from said IP datagram an Application Level Protocol (ALP) transported by a socks connection;

program code means for locating from a type of service (TOS) definition table a record corresponding to said ALP of said IP datagram; and

determining from said located record a TOS value; and

program code means for subsequently writing said determined TOS value into said TOS field of said IP datagram, wherein said TOS value is based on said ALP transported by said socks connection.

41. The computer program product of Claim 40, wherein said IP datagram includes an IP header having a source IP address field and a destination IP address field, wherein said IP datagram further includes a source port field and a destination port field, wherein said computer program product further includes:

program code means for reading a source device address of said source device from said source IP address field;

program code means for reading a destination device address of said destination device address from said destination IP address field;

program code means for reading a source application address of said source device from said source port field;

program code means for reading a destination application address of said destination device from said destination port field.

42. The computer program product of Claim 40, wherein said IP datagram includes a header checksum field, wherein said writing said determined TOS value further includes:

program code means for computing a header checksum value for said IP datagram according to said TOS value; and

program code means for writing said computed header checksum value into said header checksum field.

43. The computer program product of Claim 40, wherein said computer program product further includes program code means for storing in a socks connection table a new entry containing said TOS value.

44. The computer program product of Claim 40, wherein said program code means for determining whether or not said IP datagram is a socks connect message is a socks traffic analyser component within associated with said source device.

45. The computer program product of Claim 40, wherein said program code means for writing said determined TOS value is a socks TOS finder component within associated with said source device.